

REMARKS

Upon entry of the instant amendment, claims 1-7 will be pending in the application. By this amendment, claims 1 and 2 are amended and claims 6 and 7 are added. The above amendments do not add new matter to the application and are fully supported by the specification and drawings. For example, support for the amendment to claim 1 and new claims 6 and 7 can be found in Figs. 2-10. Reconsideration and withdrawal of all pending rejections in view of the above amendment and following remarks is respectfully requested.

Acknowledgement of Allowable Subject Matter

Applicant appreciates the indication that claim 2 contains allowable subject matter and would be allowed if presented in independent form. Accordingly, as claim 2 is being presented in independent form, Applicant request that the Examiner indicate that this claim is allowed. Furthermore, Applicant submits that all of the pending claims are allowable over the prior art of record for the reasons below.

35 U.S.C. § 103 Rejection

Claims 1 and 3-5 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,377,445 to DAVIS in view of U.S. Patent No. 4,604,776 to TAKAHASHI. This rejection is respectfully traversed.

By way of non-limiting example, the invention is related to a support structure of a control board. The support structure includes a control board 54 including a plurality of attaching holes 57 disposed at respective corners of an imaginary polygon, as

shown, for example, in the embodiments of Figs. 3 and 6-10. A support member 43 is used for supporting the control board 54. A plurality of support bosses 55 are disposed on the support member 54 in correspondence with the respective attaching holes 57. The support bosses 55 each having a support portion 55b in contact with one face 54a of the control board 54, and an engaging portion 55d inserted into the attaching hole 57 and engaged with another face 54b of the control board 54, as shown, for example, in Fig. 4. As shown in the embodiment of Fig. 4, for example, each of the engaging portions 55d is formed with a split groove 58 in a shape of a straight line opened at a front end. The respective support bosses 55 are provided at the support member 43 such that the split grooves 58 of the support bosses 55 disposed at two ends of the straight lines connecting corners of the imaginary polygon are not disposed on the same straight lines, i.e., are not aligned with each other or parallel to each other. See Figs. 3 and 6-10.

Independent Claim 1

The Examiner asserts that DAVIS shows all of the features of the claimed invention except for the support member being made of synthetic resin. Applicant submits that neither DAVIS nor TAKAHASHI disclose or suggest the combination of features recited in at least claim 1.

Independent claim 1 recites, *inter alia*:

that each of the engaging portions is formed with a split groove in a shape of a straight line opened at a front end thereof, each split groove is arranged between engaging members, and the respective support bosses are provided at the support member by avoiding alignment between at least two of the split grooves of the support bosses disposed at two ends of straight lines connecting corners of the imaginary polygon.

DAVIS discloses a mounting system that is very different from that of the claimed invention. Whereas the invention provides a mounting arrangement that allows for expansion and contraction movement of the control board relative to the support bosses, DAVIS discloses a system for mounting a control board 106 to a support member 108 via standoffs 110 in a manner which ensures that the control board 106 is fixedly mounted to the standoffs 110. In particular, Applicant directs the Examiner's attention to Fig. 5 of DAVIS which shows that the control board 106 is fixed to the standoffs 110 via fasteners 154. Since these fasteners 154 fix the control board 106 to the standoff 110, they necessarily prevent movement of the control board 106 relative to the standoffs 110. Indeed, DAVIS specifically describes this connection as "a robust attachment" that "furnishes good electromagnetic interference (EMI) grounding of the motherboard 106 to the chassis 102" (see col. 4, lines 39-53). Clearly, such a connection would not allow for any expansion and contraction movement of the control board 106 relative to the standoffs 110.

Moreover, while Applicant does not dispute that the fastener 154 has a slit groove (which is engaged by a screw-driver), this groove is not arranged on the standoff 110. Instead, the groove is arranged on the fastener 154. Moreover, the Examiner must acknowledge that whereas the slit groove 58 of Applicant's invention allows the groove width to change when the engaging portions 55d move or deflect upon the support bosses 55 sliding through the openings 57, in DAVIS, the portions of the fastener 154 divided by the groove do not deflect or move. If they did, the fastener 154 could not be tightened or loosened – a result that is contrary to the teachings of DAVIS.

Furthermore, as explained above, whereas the slit groove 58 and the engaging

portions 55d of the instant invention allow for expansion and contraction movement of the control board 54, this is clearly not the function of the screw-driver slot of the fastener 154 in DAVIS.

Still further, DAVIS does not show or even remotely suggest that the split grooves are arranged such that they are not in the straight lines connecting corners of an imaginary polygon, as at least recited in independent claim 1. At most, DAVIS suggests that the screw-driver grooves can be arranged randomly.

Thus, it is clear from a fair reading of DAVIS that it does not disclose or suggest that each of the engaging portions is formed with a split groove in a shape of a straight line opened at a front end thereof, each split groove is arranged between engaging members, and the respective support bosses are provided at the support member by avoiding alignment between at least two of the split grooves of the support bosses disposed at two ends of straight lines connecting corners of the imaginary polygon.

Nor does TAKAHASHI compensate for or cure the above-noted deficiencies of DAVIS. While it is apparent that TAKAHASHI shows a spacer for mounting circuit boards. TAKAHASHI also fails to teach or suggest the above-noted features of the claimed invention. In particular, TAKAHASHI does not disclose or suggest that each of the engaging portions is formed with a split groove in a shape of a straight line opened at a front end thereof, much less, that each split groove is arranged between engaging members, and that the respective support bosses are provided at the support member by avoiding alignment between at least two of the split grooves of the support bosses disposed at two ends of straight lines connecting corners of the imaginary polygon.

Independent claim 1 also recites, *inter alia*:

each of the support bosses being integrally formed with the support member and allowing for expansion and contraction movement of the control board relative to the support member.

Neither DAVIS nor TAKAHASHI discloses or suggest support bosses integrally formed with a support member. To the contrary, Fig. 3 of DAVIS clearly shows standoffs 110 which are separate members from the control board 106. Similarly, Fig. 10 of TAKAHASHI clearly shows spacers 1-4 which are separate members from the board 5a.

Accordingly, it is clear that the art of record fails to provide any teaching or suggestion of the features noted above. As a result, Applicant submits that the asserted rejection is improper. Therefore, withdrawal of the rejection of claim 1 is respectfully requested.

Dependent Claims

With respect to claim 3, the Examiner asserts DAVIS shows in Fig. 2 an imaginary polygon as a quadrangle with four of support bosses provided on the support member in attitudes of avoiding the split grooves of pairs of the support bosses disposed at two ends of straight lines connecting the respective corners of the imaginary quadrangle from being disposed on the same straight lines. Applicants note that what the Examiner refers to support bosses are merely screws. Moreover, because claim 3 depends from claim 1, this claim is allowable at least because it depends from claim 1.

With respect to claims 4 and 5, the Examiner asserts that DAVIS shows either

an imaginary polygon as a triangle or pentagon, providing the similar reasoning as to claim 3. However, as noted above, the Examiner's assertions are flawed, since DAVIS shows screws, which cannot properly be characterized as the recited support bosses. Moreover, because claims 4 and 5 depend from claim 1, these claims are allowable at least because they depend from claim 1.

Therefore, withdrawal of the rejection of dependent claims 3-5 is respectfully requested.

New Claims are also Allowable

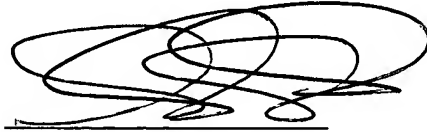
Applicant submits that the new claims 6 and 7 are allowable over the applied art of record. Specifically, claims 6 and 7 recite a combination of features similar to those of claim 1 and are clearly not disclosed or suggested by the applied art of record. Accordingly, Applicant respectfully requests consideration of these claims and further request that the above-noted claims be indicated as being allowable.

CONCLUSION

In view of the foregoing amendments and remarks, Applicant submits that all of the rejections have been overcome, and that the claims are patentably distinct from the prior art of record and in condition for allowance.

The Examiner is respectfully requested to pass the above application to issue,
and to contact the undersigned at the telephone number listed below, if needed.

Respectfully submitted,
Motoyasu Nakamura

A handwritten signature in black ink, consisting of several overlapping loops and a horizontal line at the bottom.

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